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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,759	05/21/2004	Cullen E. Bash	200311132-1	7353

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EXAMINER	
CHERVINSKY, BORIS LEO	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/849,759	BASH ET AL.	
	Examiner	Art Unit	
	Boris L. Chervinsky	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12,16-20,27 and 30-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12,16-20,27 and 30-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 May 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 901, 903, 905, 907. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 191, 193, 195. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet"

or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the control system, the heat sink external to the plurality of chassis (claims 33-35) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: Fig. 10 and Fig. 11 have not been discussed in the specification, and the reference numbers on Fig. 10 and Fig. 11 are not mentioned in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-12, 16-20, 30-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-12, 16-20 are vague and indefinite because the control system to control relative rate of coolant flow is insufficiently disclosed and is not shown in the drawings, claims 30-37 are vague and indefinite since the claimed subject matter has not been sufficiently described (see specification objections above) and properly shown in the drawings.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 2, 5-7, 9, 10, 12,16, 17-19, 20, 27, 30-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novotny et al. in view of Cheon.

Novotny discloses a modular computer system for mounting in a multi-tiered support (see Fig. 12), and configured to use a liquid coolant, comprising: a 1U computer chassis (col.9, line 22) configured for mounting in the multi-tiered support; a computer component 152 within the computer chassis; a cold plate 138 in thermal communication with the computer component, the cold plate 138 being configured to conduct heat from the component, and further configured to be convectively cooled by the coolant; a heat exchanger 162 configured to dissipate heat from the coolant, wherein the cold plate and the heat exchanger form at least part of a closed-loop cooling system; and a coolant pump 163 configured to pump the coolant through the closed-loop cooling system; an air mover 165 configured to cool the heat exchanger 162; one or more additional computer components within the computer chassis, wherein the air mover causes airflow that directly cools the one or more additional components; the air mover draws air through the heat exchanger, and blows air toward the one or more additional computer components; cover 202 covering the cold plate is also disclosed. With respect to claim 27, Novotny discloses the first and second heat exchange portions having coolant passageways separated from one another at both of two different ends by the cooling device 138 (see Fig. 15).

Novotny discloses the claimed invention except the second computer component and the second cold plate, Novotny does not disclose the control system to control the relative rate of coolant flow and coolant delivery being in parallel arrangement. Cheon

discloses the modular computer system in multi-tiered support including at least two computer components and two cold plates (see Fig. 8), the coolant delivered to the cooling plates in parallel (see Fig. 8-10), Cheon also discloses the control system configured to control the relative rate of coolant flow (see Pages 3 and 4 of the spec. [0048-0051]). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have two component s and two cold plates provided with coolant in parallel fashion and control system to control flow rate as disclosed by Cheon in the device disclosed by Novotny in order to provide cooling to more than one component and to ensure sufficient cooling. The flow rate control is also disclosed by Lopez, US Pat. 5,509,468 (col. 9, lines 60-67 and col. 10, lines 1-15), therefore above claims can be rejected alternatively in view of Lopez. With respect to claims 30-37, as best understood, Novotny discloses the claimed invention except the external heat sink being cooled by fluid and fluid can be evaporative liquid. Cheon discloses the heat exchanger including the heat sink or radiator 222 external of chassis (see Fig. 9-10) that is cooled by fluid provided by the fans 221 and provides coolant to the chassis therefore it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use cooling arrangement as disclosed by Cheon in the device disclosed by Novotny for sufficient and uninterrupted coolant supply. The method steps of claims 17-19 are necessitated by the device structure as disclosed by Novotny et al. in view of Cheon.

9. Claims 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novotny et al. in view of Cheon and further in view of Wu.

Novotny and Cheon disclose the claimed invention except exhaust vents in the chassis, a plurality of fans defining two chambers and partition 18, 18' extending fully across the chassis. Wu discloses a cooling arrangement that includes the plurality of fans 14 extending across full width of the chassis and defining two chambers; the fans are providing the airflow from one chamber and exhausting it from the second chamber through the exhaust vents; the airflow is cooling the additional computer components and a power supply.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Novotny et al. in view of Cheon and further in view of Casebolt.

Novotny and Cheon disclose the claimed invention except having air mover configured to blow in a crosswise direction to an exhaust direction. Casebolt discloses the air mover providing airflow crosswise to the exhaust direction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the air mover as disclosed by Casebolt in the device disclosed by Novotny for directing airflow to a component.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 38 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Cheon.

Cheon discloses the modular computer system configured to use a coolant, comprising: a multi-tiered support configured with a plurality of connections for connecting to a plurality of computer chassis 1, 32, wherein the multi-tiered support defines passageways 34, 301configured to deliver the coolant to each computer chassis connection 31; a computer chassis configured to mount in the multi-tiered support (see Fig. 9-11), to connect to a connection of the plurality of connections, and to receive the coolant from the connection; a computer component within the computer chassis; a cold plate 38 in thermal communication with the computer component, the cold plate being configured to conduct heat from the component, and further configured to be convectively cooled by the coolant; a heat exchanger 20 external to the plurality of chassis and configured to cool the coolant.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 571-272-2039. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2800 ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BORIS CHERVINSKY
PRIMARY EXAMINER

8/2/6